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Marketing Research Report No. 464

Costs, Net Margins, and Selling Prices of Beverages Sold in an Employee Food Service

Growth Through Agricultural Progress

U. S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Marketing Economics Research Division

PREFACE

This report is part of a broad program of research designed to improve efficiency in the marketing of farm products.

The term "food cost" in this report has the definition used by John W. Stokes in Food Service (Dubuque, Iowa, 1960): It "embraces the cost of all food items brought into the food service....It should not include any item of labor, etc., entailed in handling or processing food once it has been delivered." The term has the same meaning as the more general accounting terms, "cost of goods sold," "raw materials cost," or "cost of ingredients."

Net margin in this report is the difference between the selling price and the total costs (costs of food, labor, supplies, and depreciation).

Abilities, knowledge, and time of many people were used for this study. Industry and trade associations contributed valuable background information on management, pricing, and costing practices of restaurants and cafeterias. Personnel of the feeding facility cooperated fully, frequently at considerable personal inconvenience, in all phases of the study.

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April 1961

SUMMARY

The prices and size of servings of beverages sold by cafeterias and restaurants are based upon a combination of many factors: Food costs, competition, needs and desires of customers, level of efficiency in management, and even custom. Because several factors might be involved, adjustments in prices based on any one factor could be questionable.

Markup (selling price less food costs) was not, by itself, a good measure of the profitableness of selling individual beverage items. For most beverages, food costs were less than other costs. Many beverages with high rates of markup had low net margins and vice versa.

Adjusting selling prices so that all beverages would have the same rate of net margin would be difficult. The resulting prices might be inconsistent with good management, result in lower total net margin, or cause customer resentment. Seasonal price changes might be required.

A uniform selling price for beverages based upon adjusting amounts served would be impracticable as a means of increasing the sale of any one beverage. For some beverages, changing the amount served would be difficult; for some, illegal; for others, a decreased amount might cause customer resentment or an increased amount might be more than the customer wanted.

A 2-week study was made of an inplant eating facility in an office building. This facility consisted of two snack bars, five cafeterias, and an executive dining room; it serviced about 11,500 employees. During the period of January 12-23, 1959, it served 123,000 customers; about 53 percent for coffee breaks, 39 percent for lunch, 6 percent for breakfast, and 2 percent for dinner.

Coffee accounted for half of all beverage sales and for three-fourths of the beverage profits; coffee had the highest margin rate.

A total of 106,000 beverage sales were made. Of these, 56 percent were coffee, 17 percent tea, 14 percent milk, and 13 percent other beverages.

The weighted average selling price for all beverages was 9.4 cents. For individual beverages selling prices ranged from 5 cents for small colas and plain hot tea to 25 cents for milkshakes.

The weighted average cost for all beverages was 6.6 cents; individual beverage costs ranged from 4.5 cents for plain hot tea to 19.8 cents for milkshakes. Major components of cost were food (40 percent), labor (37 percent), and containers (18 percent); other costs--direct supplies, indirect supplies, and depreciation--combined were 5 percent. Labor costs were more than food costs for coffee and tea.

By type of service, costs were lowest for snack bars and highest for the dining room and conference room. For all practical purposes, food costs for individual beverages were the same for all service locations; but labor costs for the dining room and conference room were three times as much as for the snack bars.

The average net margin on all beverages was 31 percent of the selling price. For the major categories of beverages net margins were: coffee, 40 percent; tea, 20 percent; milk, 15 percent; and all other beverages, 24 percent.

COSTS, NET MARGINS, AND SELLING PRICES OF BEVERAGES SOLD IN AN EMPLOYEE FOOD SERVICE

By D. D. MacPherson and Jesús L. Maldonado [1]

INTRODUCTION

Of all consumer expenditures for food, approximately 25 percent are for prepared foods purchased in away-from-home eating establishments; this is an increase of nearly one-third from 20 years ago. Therefore, the study of costs and margins for food served in eating establishments is within the general scope of studies of costs and margins for farm products. This is a report of one such study: the costs and margins for serving beverages in the employee food services operated in an office building (inplant food service).

The term "food cost" used in this report has the same meaning as the more general accounting terms, "cost of goods sold," "raw materials cost," or "cost of ingredients."

Recently published material has called attention to this subject. A report from Oregon State College analyzes the costs of serving coffee and milk in four Oregon restaurants. [2] A magazine article points out the advantages of using milk dispensers and milk vending machines. [3] Both of these publications promote the belief that pricing on the basis of total costs would increase the sale of milk in eating establishments.

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[1] Mr. MacPherson is an agricultural economist, Agricultural Marketing Service, U. S. Department of Agriculture; Mr. Maldonado is an agricultural economist at the Agricultural Experiment Station, University of Puerto Rico, but for this study, was assigned to the Department of Agriculture.

[2] Colburn, Jerry and Christensen, S. K. "Comparative Costs of Serving Coffee and Milk in Selected Oregon Restaurants." Misc. Paper 59; Agr. Expt. Sta., Oreg. State Coll., Corvallis, Oreg. July 1958.

[3] Cook, Hugh L., and Graf, Truman F. "Restaurants: Milk is Profitable to Handle" Hoards Dairyman 99(6):283, March 25, 1954, Fort Atkinson, Wis.

PURPOSE AND METHOD OF STUDY

The purpose of this study was twofold: (1) To determine the costs and margins for serving beverages in the employee food facilities operated in an office building; (2) to examine certain merchandising and pricing principles in the light of costs and margins as well as other factors that determine pricing policies.

For the 2-week period of January 12-23, 1959, data were obtained by:

1. Recording number and type of beverages purchased at each individual food service station.

2. Making time-and-motion studies of preparation of beverages, servicing counters, serving customers, and dishwashing.

3. Making spot checks to determine average prices of meals, number and kinds of dishes and silverware used, and number of glasses used for water.

4. Observing the duties performed by each employee working directly or indirectly with beverages. Conferences were held with cafeteria personnel to confirm and supplement the observations.

Data were obtained from accounting records for:

1. Cost of food used for beverages.

2. Costs of labor used for the direct duties of preparing and serving beverages and for indirect duties such as setting up the serving areas, bussing (removing soiled dishes), cleaning up, washing dishes, and supervising. Labor costs included cafeteria employees' pay, social security taxes, unemployment insurance, workmen's compensation, hospitalization, life insurance, sick leave, paid vacations, and meal subsidies. (Meals are sold to cafeteria employees considerably below cost.)

3. Costs of direct supplies such as napkins, stirrers, straws, and paper cups and covers.

4. Costs of indirect supplies such as employee uniforms, cleaning supplies, light, heat, and power.

5. Charges for depreciation of all equipment used directly for beverages such as coffee makers, cola dispensers, milk dispensers, and refrigerated space; also depreciation of equipment used indirectly for beverages such as cash registers, counter space, tables and chairs, water centers, dishwashing equipment, food carts, ice-making machinery, and office furniture and equipment.

Data were edited, transcribed, and punched on cards which were processed and tabulated by data processing machines.

Cost data were analyzed to determine cost allocation procedures. The procedures were uniform for all beverages and conformed with those approved by the National Restaurant Association and other generally accepted authorities.

Nature of Operation Studied

The food operation used for this study was in an office building. It served about 11,500 persons of whom 9,500 worked in the same building and 2,000 worked in nearby buildings.

Even though most of the office employees ate in the building, the food operations were, nevertheless, partially competitive: these employees were not required to eat "in" and substantial numbers ate in privately operated restaurants in the surrounding area. However, eating outside was inconvenient, particularly in bad weather, because of limited time allowed for lunch. The patrons, therefore, may be considered as being partially "captive." Nevertheless, accessibility of outside eating places was of sufficient importance that prices charged were competitive. While most of the patrons were office workers, some were visitors and tourists.

The operations were to a small extent subsidized in that space was provided at very low cost and water at no cost. The operations in turn subsidized other activities by providing funds for welfare, social, and recreational programs for office employees.

Types of Facilities

Food operations at eight locations fall into three distinct types (table 1).

The two snack bars served beverages, sandwiches, desserts, and a limited selection of hot foods. Tables and chairs were not provided at these facilities.

The five cafeterias served regular meals and, except for cafeteria E, offered a wide selection of foods. Lunch was served in all five cafeterias, breakfast in A and C, and dinner in B. Beverages and desserts were served for morning and afternoon coffee breaks in A and afternoon coffee breaks in B.

Cafeteria E was a special operation used for scheduled luncheon meetings of office employee organizations. These groups varied from less than 15 to nearly 100 members. A flat price was charged for food served at each meeting; the prices varied at different meetings, depending on the meat served. Selection of foods by the customers was limited to one of two types of meat, one of two types of dessert, and one of three types of beverage.

The executive dining room served lunch only; admission was by permit and was limited to persons in certain job categories.

Location of Facilities

Snack bar B and cafeterias B, C, and D were on the same floor, adjacent to a central kitchen. Snack bar A and cafeteria A were on different floors and at a considerable distance from the kitchen. Cafeteria E (reserved for meetings) and the executive dining room were on the same floor but did not adjoin the kitchen; they were served by a common pantry.

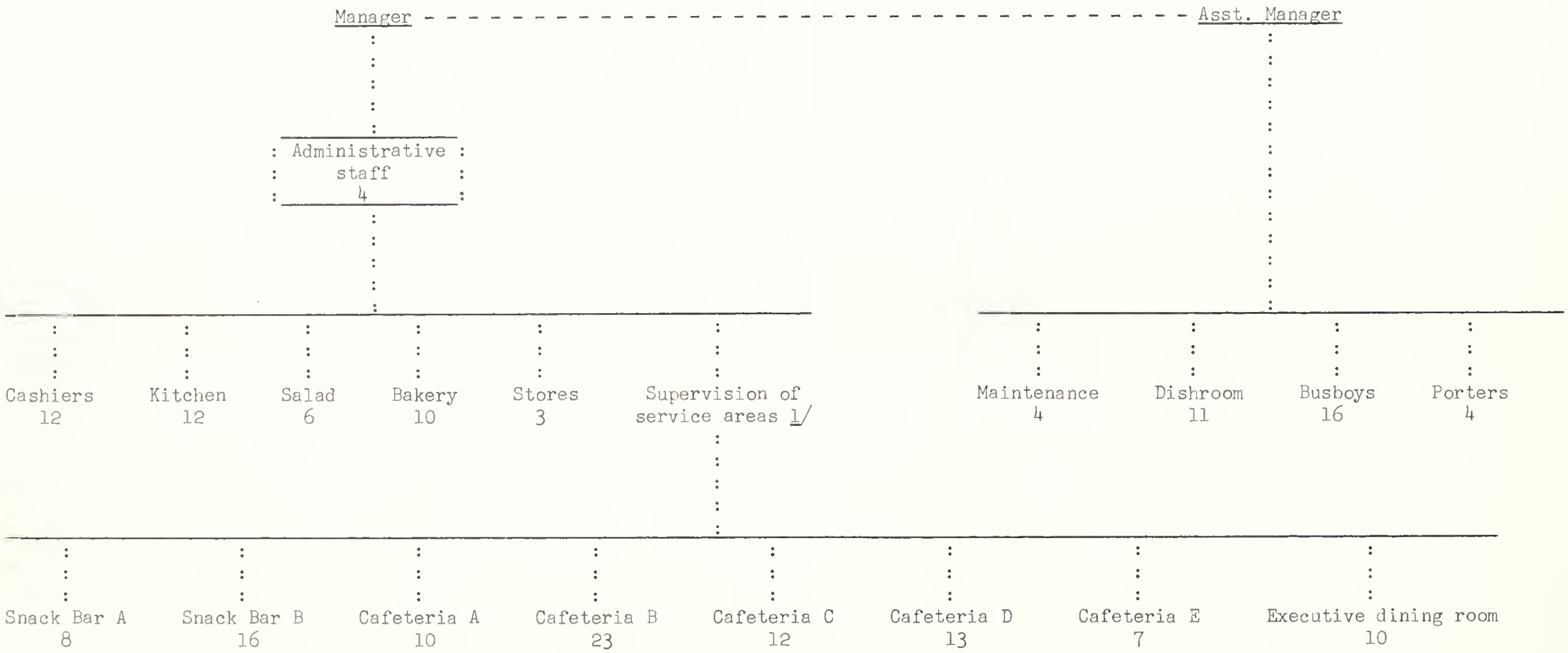
Cafeteria Employees

At the time of the study the food operation had 142 employees--133 full-time and 9 part-time; 31 were on annual salaries and 111 were on hourly wages. Those receiving hourly wages belonged to a union. Wage rates were among the highest in the area for cafeteria and restaurant workers. Total labor costs, including all fringe items, were 46 percent of the value of sales. Personnel structure is shown in figure 1.

Table 1.--Food service stations, types and hours of service

Type of Facility	Breakfast	Snacks	Lunch	Dinner
Snack bars:				
A	--	7:50 A.M.-8:50 A.M. 10:00 A.M.-4:30 P.M.	--	--
B	--	10:00 A.M.-4:30 P.M.	--	--
Cafeterias:				
A	7:50 A.M.-8:50 A.M.	10:00 A.M.-11:00 A.M. 1:30 P.M.-4:00 P.M.	11:00 A.M.-1:30 P.M.	--
B	--	2:30 P.M.-4:30 P.M.	11:00 A.M.-2:00 P.M.	5:30 P.M.-6:30 P.M.
C	7:45 A.M.-8:50 A.M.	--	11:00 A.M.-2:00 P.M.	--
D	--	--	11:00 A.M.-2:00 P.M.	--
E 1/.	--	--	--	--
Table service:				
Executive dining room	--	--	11:30 A.M.-2:00 P.M.	--

1/ Reserved for employee meetings; hours of service varied.



[1] Actual number of employees, including supervisor, on the payroll of the service areas was 47. The numbers shown are the total of all personnel who worked any time in the particular service area; many employees worked at three or four facilities each day. Five of the seven employees for cafeteria E were "borrowed" from kitchen and office. In other service areas, personnel were "borrowed" from the salad room and the bakery.

Figure 1.--Number of employees and their assignments in an inplant eating facility

Scale of Operation

During January 12-23, 1959, the eating facilities served 123,000 customers (table 2); 55 percent were men and 45 percent were women. [4] A total of 53,000 meals and 39,000 snacks were consumed in the food service facilities, and 31,000 carry-out purchases were made. [5]

Total value of sales was nearly $39,000 (table 3), of which beverages accounted for 26 percent. More than 16,000 customers purchased no beverage.

The number of beverage units sold and the value of beverage sales varied widely among the service stations. Snack bar B sold 26 percent of the total number of beverage units and cafeteria B sold 18 percent; at the other extreme, the executive dining room sold 1.4 percent and cafeteria E sold 0.65 percent. Of the total value of beverage sales, snack bar B had 27 percent and cafeteria B had 18 percent; but the executive dining room had only 1.4 percent and cafeteria E had only 0.68 percent. The relation of sales to costs is discussed later.

LIMITATION ON USEFULNESS OF RESULTS

It is virtually impossible to determine precisely the relative costs and margins for serving coffee, milk, tea, or other beverages. There are many reasons for this. Consider, for example, the factors of classification. Coffee, from the point of view of sales, costs, and margins (as well as customer preference), was actually four separate beverages: hot black coffee, hot coffee with cream, iced black coffee, and iced coffee with cream. If sugar were considered, coffee would be eight separate beverages. Food costs for coffee varied from 1.04 cents for hot black coffee to 2.28 cents for iced coffee with cream.

Coffee was sold in paper cartons, cups only, cups with saucers, and glasses; container costs varied from 0.78 cent for providing a clean cup to 1.52 cents for a paper carton with lid. Labor costs for preparing and serving coffee varied with the product served, the time of day, and place of service: In snack bar B, labor costs were 1.6 cents for iced black coffee, 1.8 cents for hot black coffee, and 2 cents for hot coffee with cream; in cafeteria B labor costs for hot black coffee were 2.5 cents for the afternoon coffee break, 3.2 cents for lunch, and 4.6 cents for dinner.

Costs of direct supplies, indirect supplies, and depreciation all varied with the specific product sold, the time of day, and the location of service.

Some costs were not included. The organization which operated the food facilities also financed some social, welfare, and recreational activities out of the margin on food service; these expenses were not included among the costs calculated in this study.

Also not included was the cost of space rental because it could not be computed independently of the nominal profit; (that is, the profit computed without considering

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[4] The word "customer" is used here for lack of a more definitive word. The total of 123,000 customers was the sum of the 107,000 units of beverage sold and the 16,000 no-beverage customers. During the 2-week period 109,000 payments were received. The difference between number of customers (123,000) and number of payments received (109,000) resulted from purchases of more than one beverage by one person who paid for himself and others.

[5] A purchase of 3 or more items or a purchase of more than 30 cents, except a carry-out, by one person was considered to be a meal. Carry-outs were tabulated separately because cost elements, particularly containers and eating space, were different for beverages carried out.

Table 2.--Units of beverages sold, by kind of beverage, and sales of food without beverage, at each station in an inplant eating facility, January 12-23, 1959

Commodity	Total	Snack bars		Cafeterias								Executive dining room
					B			C				
		A	B	A	Lunch	Coffee break	Dinner	Breakfast	Lunch	D	E	
Coffee, black	25,903	4,502	6,080	4,483	2,789	1,667	495	1,776	2,200	1,278	217	416
Coffee, cream	33,034	6,108	8,249	6,152	2,733	1,580	626	2,819	2,497	1,577	247	446
Coffee, iced.	291	17	94	31	47	30	1	-	27	32	-	12
Cola, 5 cents	2,044	-	2,044	-	-	-	-	-	-	-	-	-
Cola, 10 cents.	3,067	-	3,067	-	-	-	-	-	-	-	-	-
Fruit drinks.	1,857	206	431	455	91	448	29	-	153	44	-	-
Hot choc., plain. . . .	789	249	303	92	13	101	3	9	15	4	-	-
Hot choc., cream. . . .	1,693	197	647	446	17	245	3	71	43	24	-	-
Juice, 7 cents.	1,346	12	198	-	106	140	114	395	261	120	-	-
Juice, 10 cents	2,372	486	90	701	41	101	8	840	79	26	-	-
Juice, 15 cents	84	84	-	-	-	-	-	-	-	-	-	-
Juice, 20 cents	41	-	-	41	-	-	-	-	-	-	-	-
Milk, ½ pt. glass . . .	3,533	-	-	-	552	-	225	235	1,477	1,044	-	-
Milk, ½ pt. carton. . .	4,673	-	1,648	1,154	1,014	163	100	20	107	57	138	272
Milk, 1 pt. carton. . .	2,089	-	843	545	213	7	44	41	224	127	-	45
Choc. milk, ½ pt. carton	1,065	-	361	249	92	61	33	23	138	106	2	-
Choc. milk, 1 pt. carton	154	-	22	56	31	2	-	-	31	12	-	-
Skim milk, ½ pt. carton	1,742	105	433	270	276	45	14	16	311	252	5	15
Buttermilk, ½ pt. carton	1,362	104	269	199	285	81	22	1	173	183	15	30
Buttermilk, 1 pt. carton	226	8	70	35	37	2	9	1	32	29	-	3
Milkshakes.	541	-	541	-	--	-	-	-	-	-	-	-
Decaffeinated coffee. .	460	93	106	90	29	31	9	29	48	10	5	10
Tea, plain.	9,393	1,155	1,644	1,513	1,225	986	173	176	1,567	730	29	195
Tea, lemon.	3,370	208	490	627	560	452	125	29	449	407	21	2
Tea, cream.	1,258	83	215	300	181	122	25	37	190	93	12	-
Tea, iced	3,910	70	198	613	844	189	69	-	1,153	738	1	35
Customers who bought food but no beverage. . . .	16,297	3,813	2,964	4,197	1,875	353	369	274	1,457	965	5	25
Customers who bought non-food items	406	85	117	77	13	29	1	34	25	22	-	3
Total.	123,000	17,585	31,124	22,326	13,064	6,835	2,497	6,826	12,657	7,880	697	1,509

Table 3.--Value of total sales and beverage sales at each station in an inplant eating facility, January 12-23, 1959

Facility	Total sales beverages and food	Coffee	Milk	Tea	Other beverages	All beverages
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Snack bars:						
A	3,940.43	1,014.06	26.52	82.63	131.55	1,254.76
B	6,493.94	1,375.37	493.62	142.53	706.52	2,718.04
Cafeterias:						
A	5,431.11	1,018.21	339.12	182.33	185.58	1,725.24
B	9,045.21	934.98	417.66	295.46	140.50	1,788.60
Lunch	*6,866.77*	*521.82*	*316.86*	*173.86*	*26.72*	*1,039.26*
Coffee break	*642.81*	*306.48*	*43.98*	*98.77*	*100.44*	*549.67*
Dinner	*1,535.63*	*106.68*	*56.82*	*22.83*	*13.34*	*199.67*
C	7,800.05	888.42	359.34	224.92	177.36	1,650.04
Breakfast	*1,252.32*	*442.11*	*42.96*	*13.36*	*124.77*	*623.20*
Lunch	*6,547.73*	*446.31*	*316.38*	*211.56*	*52.59*	*1,026.84*
D	4,377.52	273.77	227.28	125.24	19.32	645.61
E	573.22	43.88	19.20	3.54	0.52	67.14
Executive dining room	1,178.97	82.24	46.68	13.10	1.04	143.06
Total	38,840.45	5,630.93	1,929.42	1,069.75	1,362.39	9,992.49

space rental).[6] Even though this cost could have been estimated, using it to determine costs for serving beverages would be a questionable procedure. Other costs (along with selling prices) determine the nominal profit; the nominal profit determines the cost of space rental. Therefore, if a cost for space rental were added to other costs, the nominal profit would be changed; this, in turn, would change the amount of space rental cost to be charged. In short, this tautological reasoning would add a cost that changes in terms of itself.

Many cost factors remain fairly fixed in dollar amount; therefore, a change in the number of units sold would be reflected in inverse change in unit costs. It is logical to assume that more hot beverages are consumed in cold weather and that more cold beverages are consumed in hot weather. Consequently, if this study had been made in July or August instead of January, unit costs would have been different.

All costs except food costs were determined by allocation procedures because they fall in the group generally known as common or joint costs. Labor costs were, for example, allocated because this study did not reveal a single instance of one cafeteria employee working all of his time on an individual product. The science of cost accounting has not advanced to the point that any one method of cost allocation is universally acceptable for the types of costs incurred in serving customers in a cafeteria.

Finally, there was the complication of selling prices. The selling price of coffee ranged from 6.7 cents when sold with a meal to 11 cents when sold with cream in a paper carton.

Thus, the costs and margins for serving beverages depend on the particular eating facility, the specific beverage involved, the type of container used, the service location, the time of day, the season of the year, the costs included, and the method of cost allocation.

COSTS AND NET MARGINS

Coffee was, in many ways, more important to the cafeteria operations than all other beverages combined. Coffee accounted for about 56 percent of the units sold (fig. 2), 56 percent of value of sales (fig. 3), 49 percent of the costs (fig. 4), and 73 percent of the dollars of net margin (fig. 5). Milk represented about 14 percent of the units sold, 19 percent of the value of sales, 24 percent of the costs, and 9 percent of the margin. Tea accounted for about 17 percent of the units, 11 percent of the sales value, 12 percent of the costs, and 7 percent of the margin.

The average sales price of all beverages was 9.40 cents (table 4), the average cost was 6.51 cents, and the average net margin was 2.88 cents--30.7 percent of sales value. Selling prices ranged from 5 cents for small colas to 25 cents for milkshakes; costs ranged from 4.47 cents for plain, hot tea to 19.77 cents for milkshakes; margins ranged from minus 0.65 cent for 7-cent fruit juices to plus 5.23 cents for milkshakes (table 5). Net margin, as a percentage of average selling price, ranged from minus 9.2 percent for 7-cent fruit juice to plus 40.7 percent for black coffee.

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[6] Space rental was determined as follows: An amount equal to 1 percent of gross sales was subtracted from the nominal profit; one half of the remainder was paid for rent. Thus, if gross sales were $1,000,000 and nominal profit were $50,000, space rental would be $20,000.

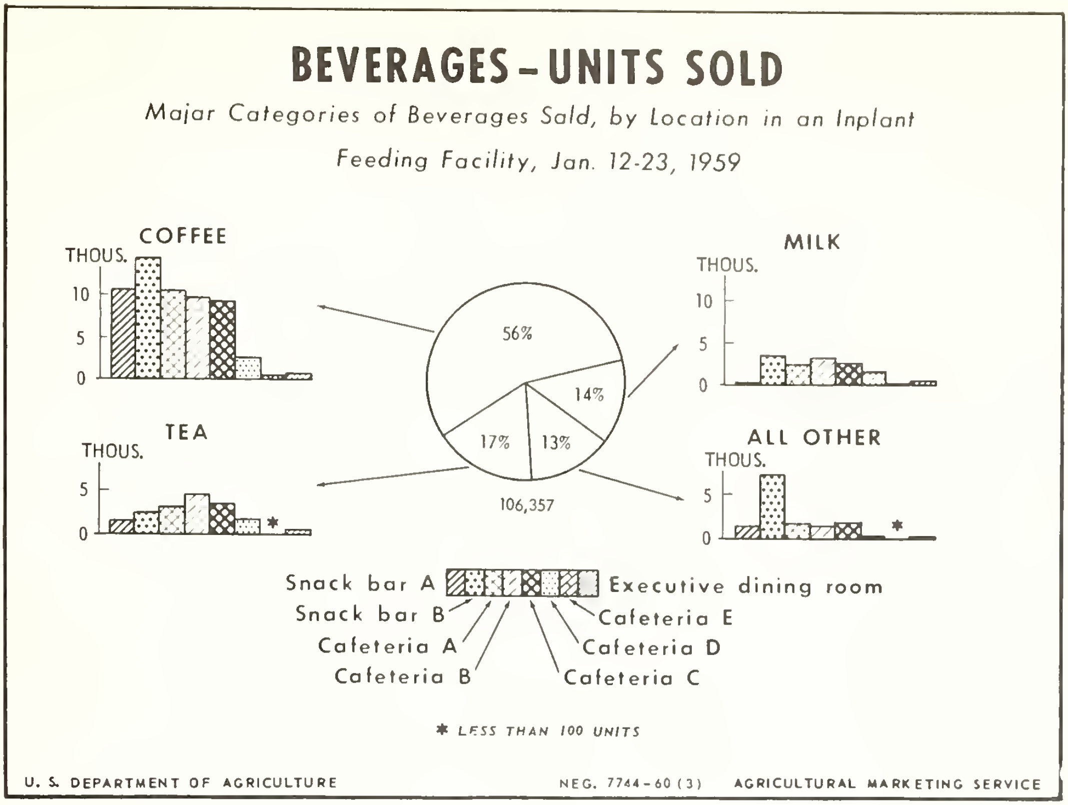

Figure 2

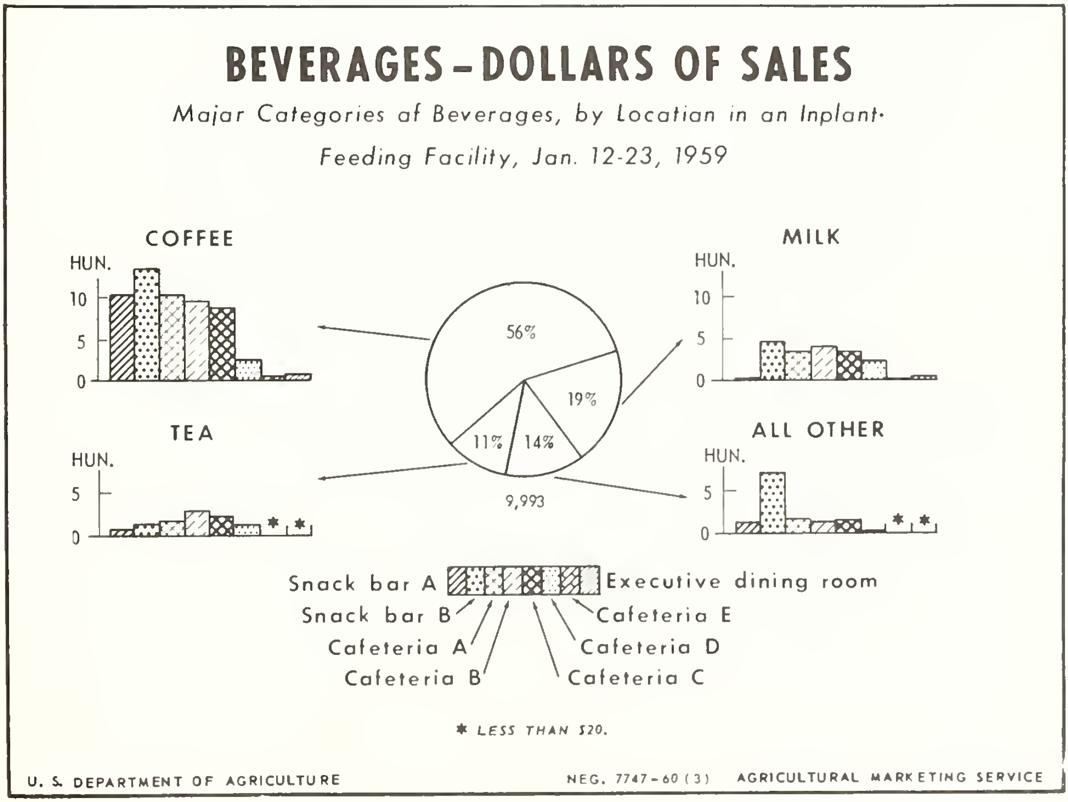

Figure 3

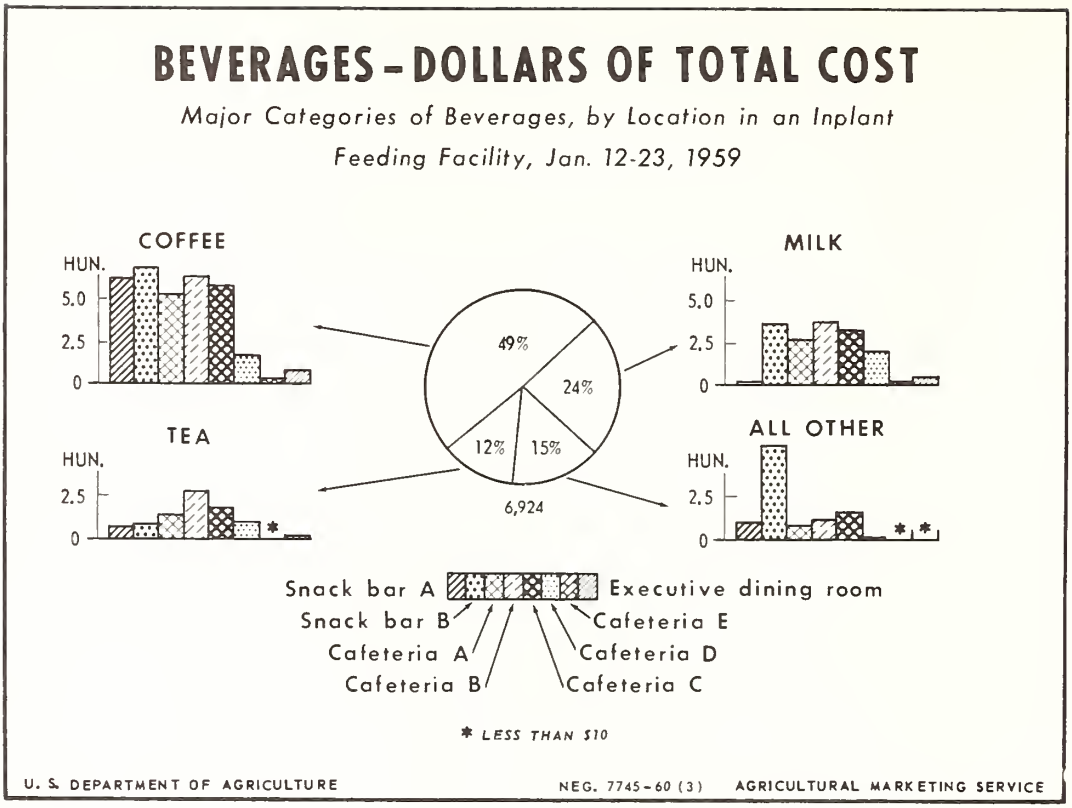

Figure 4

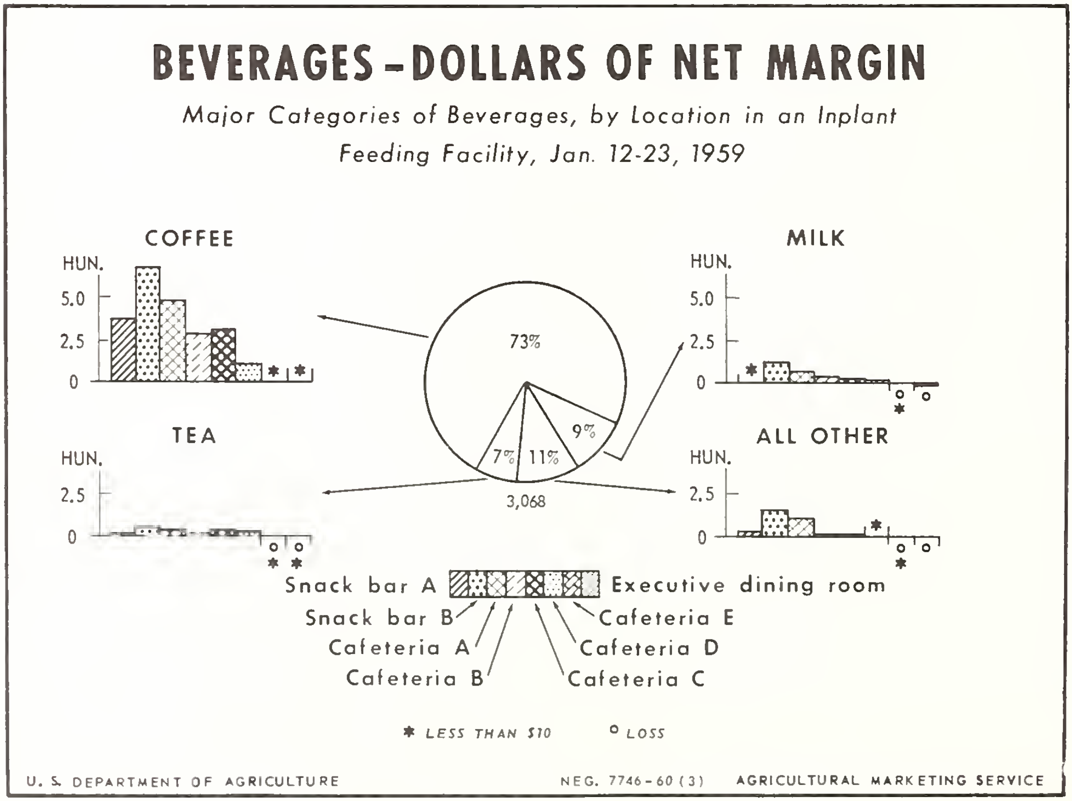

Figure 5

Table 4.--Quantities of specified beverages served and selling prices in an inplant eating facility, January 12-23, 1959

Commodity	Quantity served	Selling price: Regular containers	Selling price: Special containers	Selling price: With special meals 1/	Selling price: Weighted average price
	Fluid ounces	Cents	Cents	Cents	Cents
Coffee, black	6.0	8.0	9.0	6.7	8.37
Coffee, cream	6.0	10.0	11.0	8.2	10.41
Coffee, iced	9.6	8.0	9.0	6.7	8.25
Cola, small	4.8	5.0	-	-	5.00
Cola, large	9.6	10.0	-	-	10.00
Fruit punch	9.6	10.0	11.0	8.2	10.34
Hot chocolate, plain	6.0	7.0	8.0	5.9	7.46
Hot chocolate, cream	6.0	9.0	10.0	7.5	9.41
Juice, 7 cents	4.0	7.0	8.0	5.9	7.08
Juice, 10 cents	5.0	10.0	11.0	8.2	10.29
Milk, glass	9.6	12.0	-	11.7	11.91
Milk, ½ pt. carton	8.0	12.0	-	11.7	11.96
Milk, pt. carton	16.0	18.0	-	17.7	17.96
Chocolate milk, ½ pt. carton	8.0	12.0	-	11.7	11.99
Chocolate milk, pt. carton	16.0	18.0	-	17.7	17.98
Skim milk, ½ pt. carton	8.0	12.0	-	11.7	11.87
Buttermilk, ½ pt. carton	8.0	12.0	-	11.7	11.94
Buttermilk, pt. carton	16.0	18.0	-	17.7	17.96
Milkshakes	16.0	25.0	-	-	25.00
Decaffeinated coffee	6.0	10.0	11.0	8.2	10.41
Tea, plain	6.0	5.0	6.0	4.4	5.22
Tea, lemon	6.0	5.0	6.0	4.4	5.14
Tea, cream	6.0	7.0	8.0	5.9	7.24
Tea, iced	9.6	8.0	9.0	6.7	8.06
Average	--	--	--	--	9.40

1/ Computed by comparison of meal price with a la carte price of items in meal. Glasses of milk and ½ pints of milk cost 5 cents extra with meal; pints of milk, 11 cents extra.

Components of Sales Value

For all beverages, food ($2,820), labor ($2,580), and margin ($3,070) totaled more than four-fifths of the sales value. Containers accounted for $1,170. Direct supplies, indirect supplies, and depreciation combined were $350. 7/

7/ Depreciation does not include utilities, machinery, and equipment, or rental for space furnished at no cost.

Table 5.--Selling prices, costs, and margins for specified beverages in an inplant eating facility, January 12-23, 1959

Commodity	Average price	Total cost	Net margin	Margin as percent of price
	Cents	Cents	Cents	Percent
Coffee, black	8.37	4.95	3.42	40.7
Coffee, cream	10.41	6.30	4.11	39.6
Coffee, iced	8.25	5.36	2.89	35.0
Cola, 5 cents	5.00	5.37	- .37	- 7.4
Cola, 10 cents	10.00	6.68	3.32	33.2
Fruit punch	10.34	7.82	2.52	30.8
Hot chocolate, plain	7.46	6.84	.62	8.3
Hot chocolate, cream	9.41	7.01	2.40	25.5
Juice, 7 cents	7.08	7.73	- .65	- 9.2
Juice, 10 cents	10.29	9.13	1.16	11.4
Milk, ½ pt. glass	11.91	11.26	.65	5.4
Milk, ½ pt. carton	11.96	9.74	2.22	18.6
Milk, pt. carton	17.96	15.09	2.87	15.9
Chocolate milk, ½ pt. carton	11.99	10.65	1.34	11.1
Chocolate milk, pt. carton	17.98	16.25	1.73	9.6
Skim milk, ½ pt. carton	11.87	9.28	2.59	21.9
Buttermilk, ½ pt. carton	11.94	10.32	1.62	13.6
Buttermilk, pt. carton	17.96	15.31	2.65	14.8
Milkshakes	25.00	19.77	5.23	20.9
Decaffeinated coffee	10.41	8.51	1.90	18.2
Tea, plain	5.22	4.47	.75	14.8
Tea, lemon	5.14	4.93	.21	4.3
Tea, cream	7.24	5.48	1.76	24.4
Tea, iced	8.06	5.47	2.59	32.3
Weighted average	9.40	6.51	2.89	30.7

The relative importance of the individual components varied widely with the beverage (fig. 6): Food cost as a percentage of selling price ranged from 12.5 percent for tea to 60.9 percent for milk. But labor was 42 percent for tea and only 16.2 percent for milk, and containers were 21.3 percent for tea and only 5.3 percent for milk. In relation to selling price, food cost was five times as great for milk as for tea but labor costs were only about two-fifths as large and container costs were only one-fourth as large.

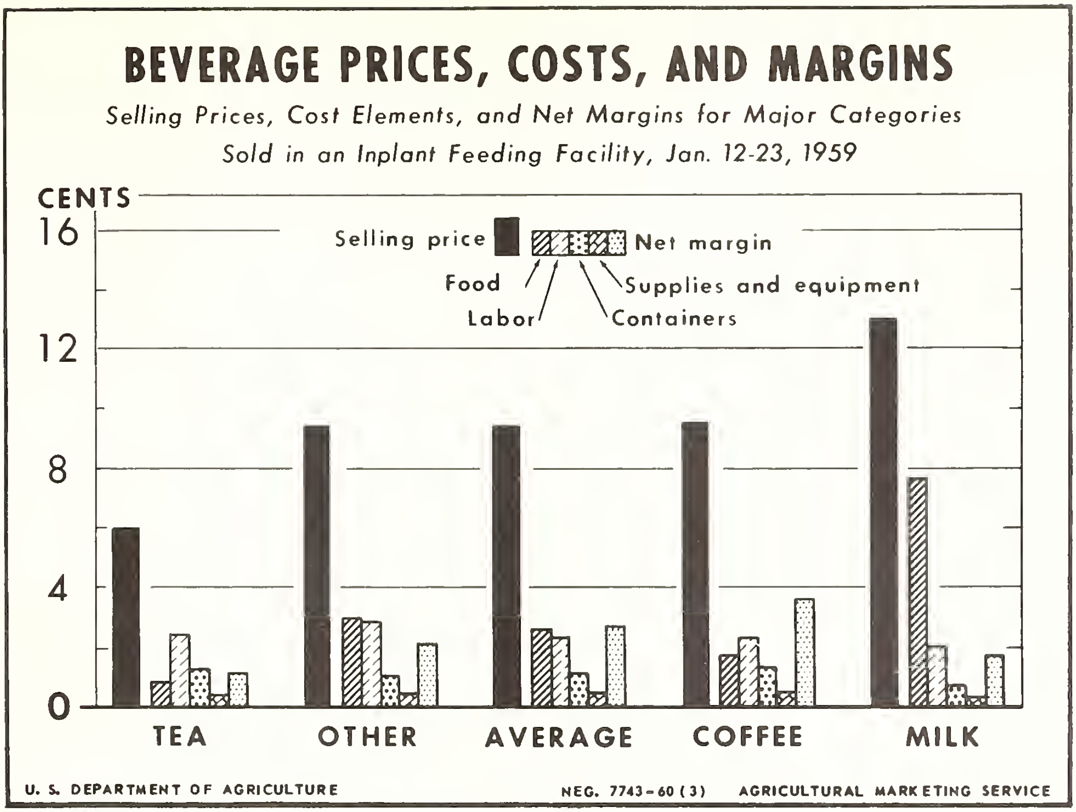

Figure 6

Food Cost 8/

Food costs for individual beverages ranged from 0.54 cent for plain hot tea to 13.48 cents for a pint of chocolate milk. For coffee, the most popular beverage, food costs were 1.04 cents, hot black; 2.28 cents, hot with cream; and 1.27 cents, iced black (table 6). Food cost was about 42 percent of the total for beverage cost.

While food costs for each beverage had individual characteristics, the cost of milk deserves special comment. It might be supposed that milk, sold in a glass would have a substantially lower food cost than milk sold in a paper carton: The cost of a half pint of homogenized milk in a paper carton was about 7 cents and the cost of homogenized milk in 5-gallon containers for dispensing in glasses was 5.8 cents per half-pint equivalent. However, the costs turned out to be about the same. Milk from the dispenser was sold in 10-ounce glasses and the average serving was about 9.6

8/ Method of computing food cost was the same for each beverage--total cost was divided by the number of units sold:

$$\frac{[(\text{Opening inventory} + \text{issues} - \text{closing inventory}) \text{ X unit price}] + \text{Other ingredients: water, ice, sugar, cream, etc.}}{\text{Number of units sold}}$$

The computed price includes the cost of products consumed by cafeteria employees and of all products prepared but not sold. Together these averaged about 6 percent of total units prepared.

Details of methodology for computing food cost and other cost components are available upon request.

Table 6.--Cost elements and total costs for beverages in an inplant eating facility, January 12-23, 1959

Commodity	Food	Labor	Containers	Direct supplies	Indirect supplies	Depreciation	Total cost
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Coffee, black	1.04	2.33	1.30	0.06	0.17	0.05	4.95
Coffee, cream	2.28	2.35	1.30	.15	.17	.05	6.30
Coffee, iced	1.27	2.61	1.12	.11	.21	.04	5.36
Cola, 5 cents	1.01	3.13	.85	.15	.20	.03	5.37
Cola, 10 cents	2.01	3.13	1.07	.05	.29	.03	6.68
Fruit punch	3.09	3.25	1.07	.14	.23	.04	7.82
Hot chocolate, plain	3.08	2.29	1.10	.07	.26	.04	6.84
Hot chocolate, cream	3.65	2.00	1.00	.18	.14	.04	7.01
Juice, 7 cents	3.54	3.07	.80	.09	.20	.03	7.73
Juice, 10 cents	4.79	2.98	.95	.13	.24	.04	9.13
Milk, glass	6.96	3.04	.96	.04	.19	.07	11.26
Milk, ½ pt. carton	7.01	1.87	.60	.09	.12	.05	9.74
Milk, pt. carton	12.58	1.67	.57	.09	.14	.04	15.09
Chocolate milk, ½ pt. carton	8.01	1.81	.58	.09	.13	.03	10.65
Chocolate milk, pt. carton	13.48	1.76	.72	.09	.15	.05	16.25
Skim milk, ½ pt. carton	6.54	1.81	.68	.08	.13	.04	9 28
Buttermilk, ½ pt. carton	7.40	2.01	.64	.10	.12	.05	10.32
Buttermilk, pt. carton	12.58	1.83	.62	.10	.14	.04	15.31
Milkshakes	12.09	5.47	1.73	.10	.30	.08	19.77
Decaffeinated coffee	4.61	2.25	1.30	.15	.16	.04	8.51
Tea, plain	.54	2.29	1.36	.06	.16	.06	4.47
Tea, lemon	.87	2.37	1.34	.13	.16	.06	4.93
Tea, cream	1.35	2.43	1.34	.14	.16	.06	5.48
Tea, iced	.99	3.17	.98	.09	.19	.05	5.47

fluid ounces--20 percent more than the 8 fluid ounces in a half-pint container. The cost of this extra 1.6 ounces was recognized but not easily corrected; employees who dispensed milk were unwilling to take abuse from customers who believed they were being cheated if the glass was not full.

Labor Costs 9/

Labor costs for all beverages averaged about 2.4 cents per unit. The range in costs, generally much less than that for food costs, was from about 1.7 cents for pints of regular homogenized milk to about 5.5 cents for milkshakes. Actually the

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9/ Labor costs included all fringe costs paid by the employer; these were social security, life insurance, workmen's compensation, unemployment insurance, paid sick leave, paid vacations, paid holidays, and free or subsidized meals.

extremes of the range are somewhat misleading; for fully three-fourths of the beverages sold, the average labor cost fell between 2 and 2.5 cents (table 6). Labor costs were 37 percent of all beverage costs.

Average labor costs for milk, except that served in glasses, were below the average for all beverages. This was because counter employees placed cartons of milk on the counter, and customers served themselves, but for most other beverages, the employee had to serve each customer.

Labor costs were for two categories: (1) Direct labor--preparing and serving beverages; (2) indirect labor--cashiering, bussing, waiting on tables (in executive dining room only), supervising, and administration. Labor costs associated with dishwashing were computed separately and included as an element of container costs. Labor cost, including dishwashing, was about 51 percent of all beverage costs.

Container Costs

The average cost for beverage containers was about 1.2 cents; the range was from about 0.6 cent for half pints and pints of regular milk and half pints of chocolate milk to about 1.7 cents for milkshakes. Container costs for milk were all below the average for all beverages; container costs for hot beverages, except hot chocolate, were about average (table 6). Container costs were about 18 percent of total beverage costs. Costs for providing clean cups, saucers, glasses, and spoons included costs for washing and handling: direct and supervisory labor, cleaning compounds, depreciation on conveyors and dishwashing machines, hot water, and electricity. Also included was the relatively minor cost of the glasses, dishes, and spoons.

Included in the container category were the following: Cups and saucers for all hot beverages served with meals; cups for hot beverages served at snack bars and coffee breaks at certain stations; glasses for iced drinks, fruit drinks, milk in glasses, and cartons of milk with meals; 10/ and paper cups for all carry-outs at all stations, for all colas and milkshakes, and all beverages sold at snack bar A.

For convenience the cost of glasses used for water was prorated among the beverages as part of the container cost.

For the 2-week period of the study the total cost for providing clean dishes, glasses, silverware, and trays was $3,075. The number of units washed was 190,200 dishes, 38,600 glasses, 242,500 pieces of silverware, and 72,500 trays. Costs were 0.72 cent for each dish, 0.85 cent for each glass, 0.05 cent for each piece of silverware, and 1.78 cents for each tray.

Costs were higher for each glass than for each dish because glasses were washed once or twice each week on rotary brushes. The automatic dishwashing equipment left a very slight film on the dishes; the dishes were sterile and ready for use but the film on the glasses was visible and might displease customers. Other suggested reasons were that glasses used for milk--particularly buttermilk--were difficult to wash and that lipstick was difficult to remove from glasses.

10/ Extensive sampling indicated that 98 percent of the customers who purchased milk in cartons with meals actually drank the milk from a glass.

Direct Supplies

Direct supplies used by beverage customers included silverware, trays, napkins, wooden stirrers, and straws. The cost of these items was allocated to beverages and all other food according to dollar value of sales. The amount charged to beverages was then allocated to the individual beverages on the basis of units sold. The total of these costs charged to beverages was very small; they averaged 0.11 cent per unit of beverage and were only about 1.7 percent of the total cost for beverages. The range was from 0.06 cent for plain tea and black coffee to 0.18 cent for hot chocolate with cream (table 6).

It might be assumed that the cost of spoons should not have been charged against milk and other beverages that do not require stirring, but it was observed that most customers purchasing meals took silverware whether or not the beverage was to be stirred. The percentages of customers taking a knife, fork, and spoon (the most frequent combination) by type of beverage consumed were: Black coffee, 81 percent; coffee with cream, 82.4 percent; milk, 83.8 percent; and tea, 83.5 percent. Percentages of customers taking at least one spoon were: Black coffee, 90.2 percent; coffee with cream, 90 percent; milk, 89.4 percent; tea, 91 percent. The differences, by type of beverage, are not statistically significant.

The cost of one wooden stirrer was allocated to beverages that required stirring, when the beverages were purchased at snack bars, or for coffee breaks. The cost of two straws was allocated to milk purchased in containers at stations where glasses were not available and to certain other beverages (colas, milkshakes, and cold drinks generally) when purchased at snack bars. The cost of one paper napkin was charged for each carry-out and each snack bar beverage.

Indirect Supplies and Services

The costs of indirect supplies and services averaged 0.17 cent for all beverages. Items included in indirect supplies and services were: Maintenance supplies and labor; cleaning supplies not absorbed elsewhere; refrigeration for storage of milk and frozen fruit juices; ice for banking milk on service counters; uniforms for production and service personnel; and sugar, salt, and pepper dispensers. The costs ranged from 0.12 cent for half pints of homogenized milk and buttermilk to 0.29 cent for large colas and 0.30 cent for milkshakes. These costs averaged about 2.6 percent of all beverage costs (table 6).

Depreciation Costs

Depreciation was the smallest of all charges. It was only 0.7 percent of the total beverage costs and averaged only 0.05 cent per unit of beverage sold. The range was from 0.03 cent for colas, 7-cent juice, and half pints of chocolate milk to 0.08 cent for milkshakes (table 6).

Direct depreciation costs were for equipment which had specialized use. These were coffee urns and 8-cup glass coffee makers, cream dispensers, milk dispensers, and cola dispensers (including carbonation equipment), and milkshake mixer.

Indirect depreciation costs were for equipment which had generalized use. These were cash registers, general counter space, tables and chairs, office equipment and machinery, and water stations. Some depreciation costs were not included because they had been charged elsewhere; for example, dishwashing, ice making, and refrigerated storage space equipment.

Many individual differences in costs among beverages do not appear to be logical when considered only in relation to the entire cafeteria operation. For instance, labor costs for pints of regular milk were 1.67 cents and for half pints of buttermilk were 2.01 cents. Such differences resulted from variations in the proportions of the individual beverages sold at individual stations.

Individual stations had widely varying costs (table 7). These variations are, in some ways, more noteworthy than the average differences among beverages, because differences in average costs among beverages were to some extent reflected in the selling prices.

The fact that all beverages were not sold at all stations complicates comparisons of average beverage costs among stations. However, costs were generally lowest at the snack bars and highest in cafeteria E and the executive dining room.

A few examples for individual beverages illustrate the wide variation among stations. The total cost for hot black coffee ranged from 3.98 cents in snack bar B to 8.75 cents for cafeteria E; for hot tea, from 2.99 cents in snack bar B to 7.91 cents in the executive dining room; for a glass of milk, from 10.67 cents in cafeteria D to 12.9 cents in cafeteria B (dinner).

The important differences in cost result from the types and amounts of services provided for customers. The snack bars provided a minimum of simple services; the special dining rooms provided substantially greater services. Tied to the type of service was the number of customers served. Snack bar B served an average of 380 customers (410 units of beverage) per hour. 11/ The executive dining room served an average of 58 customers (59 units of beverage) per hour. The value of sales per customer was considerably lower for the snack bars; but the difference was not enough to offset the type of service. Value of sales was $100 per hour in snack bar B and $47 per hour in the executive dining room.

The number of customers served was particularly important in cafeteria E. Average number of customers served per day was 79; on one day of the 2-week period only 20 customers were served. Setup and cleanup time was about the same for 20 customers on the one day in cafeteria E as it was for 820 customers that same day in cafeteria D.

To illustrate the reason for the differences, weighted average cost components were computed for major categories of beverages for the three lowest-cost operations and for the three highest-cost operations (fig. 7). For purposes of comparison only half-pint units were considered for milk.

Unit food costs varied little. The slightly higher costs for coffee in the highest cost locations resulted from the use of 8-cup glass coffee makers in the executive dining room and cafeteria E. Costs for milk were slightly lower in the highest-cost locations, because a milk dispenser was used for dinner and because these stations sold more regular milk and skim milk and less chocolate milk than the lowest-cost stations. Differences in ingredient cost for tea were negligible.

11/ Number of units of beverage exceeded the number of customers because of multiple units purchased for carry-outs.

Table 7.--Total costs per unit of beverages sold at each service station in an inplant eating facility, January 12-23, 1959

Commodity	Average	Snack bars		Cafeterias								Executive dining room
		A	B	A	B			C		D	E	
					Lunch	Coffee break	Dinner	Breakfast	Lunch			
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Coffee, black	4.95	5.15	3.98	4.23	6.23	4.71	7.53	5.09	5.80	5.12	8.75	8.41
Coffee, cream	6.30	6.59	5.47	5.62	7.27	6.17	8.85	6.43	7.08	6.40	9.96	9.71
Coffee, iced	5.36	5.45	4.09	4.94	4.69	6.56	8.44	4.56	5.72	4.71	-	7.65
Cola, 5 cents	5.37	-	5.37	-	-	-	-	-	-	-	-	-
Cola, 10 cents	6.68	-	6.68	-	-	-	-	-	-	-	-	-
Fruit punch	7.82	6.74	8.48	7.85	9.73	7.95	9.01	-	7.13	6.46	-	-
Hot choc., plain	6.84	7.87	5.63	6.13	8.28	6.75	9.61	7.22	8.00	7.52	-	-
Hot choc., cream	7.01	8.83	6.66	7.13	9.08	7.40	10.50	7.36	8.84	8.37	-	-
Juice, 7 cents	7.73	-	8.04	7.69	7.90	7.75	9.20	7.97	6.87	6.74	-	-
Juice, 10 cents	9.13	9.42	9.63	-	9.18	9.13	10.48	9.26	8.15	8.01	-	-
Milk, glass	11.26	-	-	-	11.33	-	12.92	11.34	11.36	10.67	-	-
Milk, ½ pt.	9.74	-	8.60	9.31	9.81	11.04	12.97	11.76	10.30	10.57	13.58	14.09
Milk, pt.	15.09	-	14.11	14.86	15.37	16.51	18.53	17.31	15.85	16.13	-	19.65
Choc. milk, ½ pt.	10.65	-	9.53	10.23	10.80	12.02	13.96	12.74	11.29	11.57	14.57	-
Choc. milk, pt.	16.25	-	15.04	15.69	16.26	17.46	19.42	18.20	16.74	17.02	-	-
Skim milk, ½ pt.	9.28	8.85	8.07	8.76	9.33	10.54	12.49	11.27	9.83	10.10	13.10	13.61
Buttermilk, ½ pt.	10.32	9.70	9.87	9.62	10.19	11.41	13.34	12.03	10.67	10.95	-	14.47
Buttermilk, pt.	15.31	14.81	14.16	14.79	15.36	16.58	18.52	17.31	15.85	16.13	-	19.64
Milkshakes	19.77	-	19.77	-	-	-	-	-	-	-	-	-
Decaffeinated coffee	8.51	8.75	7.29	7.92	9.56	8.51	11.30	8.96	9.61	8.58	10.69	12.38
Tea, plain	4.47	4.32	2.99	3.74	5.64	3.94	6.94	4.49	5.17	4.56	5.80	7.91
Tea, lemon	4.93	4.86	3.60	4.20	6.05	4.50	7.37	4.90	5.54	4.94	6.13	8.24
Tea, cream	5.48	5.33	4.07	4.68	6.52	4.98	7.85	5.35	6.01	5.42	6.61	-
Tea, iced	5.47	6.28	5.25	5.92	6.30	5.87	6.88	-	5.06	4.42	7.07	6.84

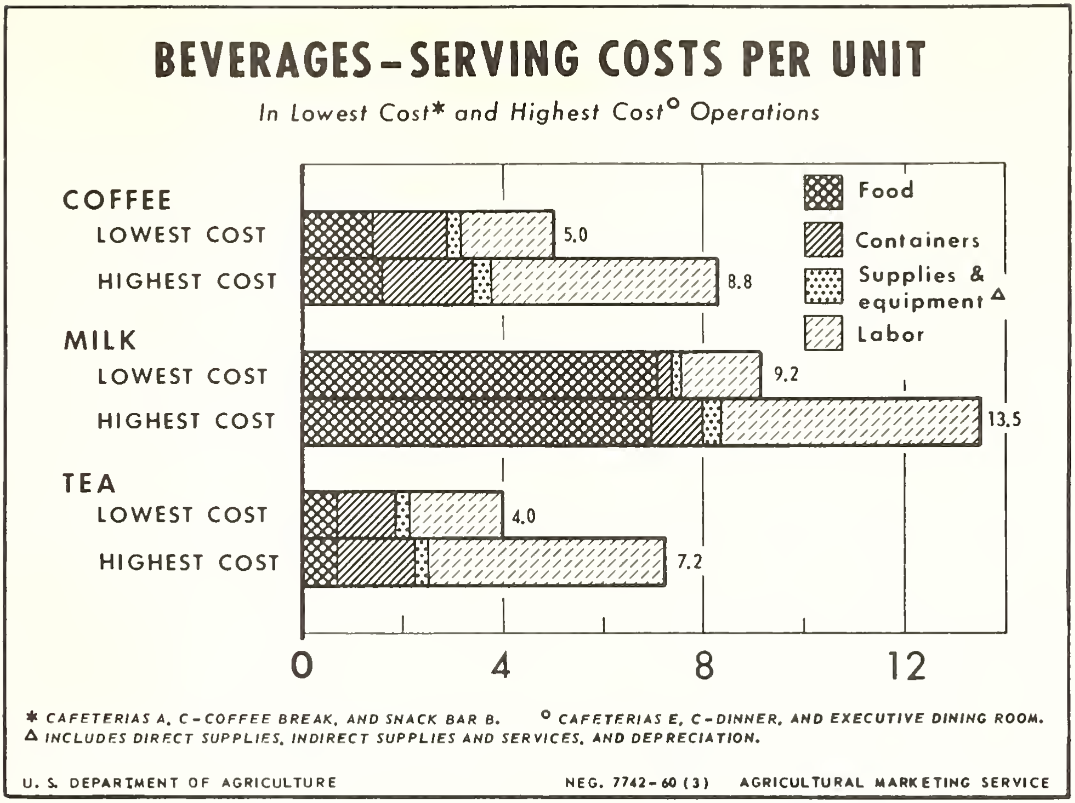

Figure 7

Unit labor costs were, by far, the most important factor in variations in total costs among operations. Labor was used much less efficiently in the high-cost stations: The small number of customers served resulted in high unit labor costs for setup and cleanup, and for counters. In addition, table service added substantially to the labor costs for the executive dining room even though customers paid a small fee for this service. 12/ Labor costs for beverages averaged about 1.8 cents per unit in the lowest-cost locations and about 4.9 cents--nearly three times as much--in the highest-cost locations.

Differences in container costs resulted primarily from the type of service. In the low-cost locations, coffee and tea were usually served in cups without saucers or in carry-out containers; milk was served in cartons and drunk with straws. On the other hand, in the highest-cost locations coffee and tea were served in cups with saucers, and milk was drunk from glasses. In addition, glasses for water were not available in two of the three low-cost locations; glasses for water were available in one high-cost location and glasses of water were served in the other two.

12/ Labor costs were high in the executive dining room for all foods as well as for beverages. Measured as a percentage of total sales, total labor costs were 20.5 percent in snack bar B, 23.8 percent in cafeteria B, and 61.1 percent in the executive dining room.

Unit costs for supplies and equipment were a little more in the high-cost locations. Depreciation costs were considerably higher in these locations primarily because of the new furniture in cafeteria E and the executive dining room. However, this was mostly offset by lower unit costs for direct and indirect supplies and for services: by the allocation procedures used, costs for trays, silverware, napkins, and other supplies were spread over the cost of a meal in the high-cost locations but charged mostly to beverages in the low-cost locations because beverages made up a high proportion of the total sales.

The net result of these variations in cost was that the two snack bars accounted for nearly half of the $3,068 of net margin from sale of beverages while cafeteria E and the executive dining room sold beverages at a loss (fig. 5).

PRICING PRINCIPLES

One of the objectives of this study was to examine certain merchandising and pricing principles. Only three will be considered here: (1) The profitableness of handling an item can be determined by the ratio of product cost to selling price (markup), consequently, items should be added or dropped depending on this ratio; (2) selling prices should be set on a uniform markup over total costs; (3) quantities of product sold should be adjusted on the basis of food cost so that all beverages would sell for the same price.

These principles were examined by considering the six most important beverages sold: black coffee, coffee with cream, glasses of milk, half-pint cartons of milk, plain tea, and iced tea. These 6 beverages account for 74 percent of the beverage units sold, 74 percent of the dollars of beverage sales, and 85 percent of the net margin from beverage sales.

Ratio of Food Cost to Selling Price (Markup)

The principle that the ratio of food cost to selling price determines profit ignores the importance of other costs which are frequently larger than food cost (table 6). Consequently, a high-markup item is not necessarily a high-net-margin item. For plain hot tea and iced tea combined, the ratio of food cost to selling price was about 1 to 9 while that for hot black coffee and hot coffee with cream combined was about 1 to 6; yet the net margin on tea was only about 1.3 cents while that for coffee was about 3.8 cents (table 8). The ratio of food cost to selling price was the same for glasses of milk and half-pint cartons of milk; but the net margin for a glass of milk was only about one-fourth as much as for a carton of milk. Similar comparisons made between the two coffee items and between the two tea items give similar results.

If only food cost is considered, it would appear that tea was 1-1/2 times as profitable as coffee; but when all costs are considered, tea was only 1/3 as profitable as coffee. If only food cost is considered, glasses of milk and half-pint cartons of milk were equally profitable; but when all costs are considered, half-pint cartons of milk were four times as profitable as glasses of milk.

A sales policy that went so far as to add or drop items on the basis of markup would be highly questionable. Application of this policy to the six items considered here would dictate dropping coffee with cream--the beverage that had the highest net margin.

Table 8.--Beverage markups and net margins

Beverage	Ratio of food cost to selling price (markup)	Selling price less total cost (net margin)
		Cents
Hot black coffee	1 to 8.0	3.41
Hot coffee with cream	1 to 4.6	4.12
Glasses of milk	1 to 1.7	0.65
Half-pint cartons of milk	1 to 1.7	2.40
Plain hot tea	1 to 9.7	0.77
Iced tea	1 to 8.1	2.60

Selling Prices Based on Total Costs

In applying the principle of basing selling prices upon cost, two assumptions are made: First, that consumers of any one beverage would not subsidize or be subsidized by consumers of any other beverage; second, that beverage consumers at any one eating station would not subsidize or be subsidized by beverage consumers at any other station. To illustrate this principle, hypothetical prices were based upon a uniform margin of 30.7 percent of selling price, the average for all beverages. On this basis, the average selling price of hot black coffee and hot coffee with cream would be lowered nearly 1.5 cents, a glass of milk raised 4 cents, a half-pint carton of milk raised 2.0 cents, plain tea raised about 0.8 cent, and iced tea would remain the same (table 9). The selling price of black coffee would range from 6 cents in snack bar B and cafeteria A to 13 cents in cafeteria E; the selling price of half-pint cartons of milk would range from 12 cents in snack bar B to 20 cents in cafeteria E and the executive dining room.

The principle of basing selling prices on cost would conflict with other desirable considerations:

1. The restaurant or cafeteria is operated as a unit to provide a wide variety of foods, at a range in prices, to meet varying tastes and ability or willingness to pay. Managerial policy is normally concerned with seeing that the entire operation is profitable; handling each individual food item at a profit could be inconsistent with this policy.

2. Uniform percentage margins may not be consistent with actual dollars-and-cents margins. For example, the percentage margin for iced tea in this study was 32 percent and for pint cartons of milk it was 16 percent, but the value of the margin was 2.6 cents for iced tea and 2.9 cents for the milk.

3. Successful merchandising requires prices to be competitive and also acceptable to customers. For instance, coffee consumers would be pleased with the 1-cent drop in prices of coffee but milk customers would be unhappy with the 17-25 percent increase in prices for milk that would result from basing prices on a fixed percentage markup over costs.

Table 9.--Theoretical selling prices for beverages, based upon a uniform net margin and rounded to the nearest whole cent

	Hot black coffee	Hot coffee with cream	Glass of milk	Half pint of milk	Plain hot tea	Iced tea
	Cents	Cents	Cents	Cents	Cents	Cents
Average	7	9	16	14	6	8
Snack bars:						
A	7	10	--	--	6	9
B	6	8	--	12	4	7
Cafeterias:						
A	6	8	--	13	5	9
B:						
Lunch	9	10	16	14	8	9
Coffee break	7	9	--	16	6	8
Dinner	11	12	19	19	10	10
C:						
Breakfast	7	9	16	14	6	--
Lunch	8	10	16	15	7	7
D	7	9	15	15	7	6
E	13	14	--	20	8	11
Executive dining room	12	14	--	20	11	11

4. Food costs for many of the items sold in the cafeteria are subject to substantial seasonal fluctuations (some fresh produce costs three or four times as much in winter and spring as in summer and fall). Seasonal variations in food costs for some beverages have been sufficient to change selling prices by 2 or 3 cents if selling prices were based on costs. Frequent changes in selling prices would probably annoy customers; in fact, some items might be "priced out of the market."

5. The principle of a uniform margin for all products applied among eating stations would result in a hodgepodge of selling prices that would please no one.

Uniform Selling Prices

For application of the principle of adjusting quantities served to have a uniform selling price, the uniform price for beverages was set at 10 cents, and costs other than food costs and net margins were left unchanged.

Since food cost is only one of many factors determining selling prices of beverages, substantial adjustments in quantities served would be necessary (table 10). The size of the serving of black coffee would be nearly tripled and that of plain tea would be increased almost tenfold. The size of glasses for milk would be reduced by 35 percent.

Establishing flat prices by adjusting quantities served also conflicts with other desirable considerations:

1. This pricing policy, to be successful as a means of promoting the sales of any one beverage, requires a direct consumption response to price change. For

Table 10.--Theoretical quantities of beverages sold: Quantity adjusted to establish a price of 10 cents for all beverages

Beverage	Quantity
	Ounces
Hot black coffee	16.2
Hot coffee with cream	5.9
Glass of milk	6.7
Carton of milk	5.7
Plain hot tea	55.6
Iced tea	23.9

example, if the price of a glass of milk was reduced to 10 cents by reducing the quantity served--from 9.6 ounces to 6.7 ounces--the number of glasses sold would have to increase by 43 percent just to offset the reduced quantity in each serving. It is doubtful that a 2-cent reduction in price would result in such a large increase in the number of units sold. Consequently, the net result of such an adjustment in selling prices and quantity per serving would most likely be a reduction in the total amount of milk sold.

2. For many beverages such as hot chocolate, decaffeinated coffee, and packaged milk, changing the quantity per serving would be impracticable; for packaged milk it would be illegal.

3. For some beverages, the quantity of product would be unwanted by the customer: for example, 16 ounces (3 cups) of black coffee and 56 ounces (nearly 10 cups) of plain tea.

4. The example used for adjusting price by adjusting quantity assumes that all costs except food would remain the same. This would not be so. For those beverages for which the serving would be increased, either new, larger containers or more than one container would be needed. On the other hand, reduced size of servings would also require new containers. For instance, 6.7-ounce servings of milk would require using 7- or 7-1/2 ounce glasses. A serving of 6.7 ounces in a 10-ounce glass would displease customers.

CONCLUSIONS

The ratio of food costs to selling price is not a good measure of profitableness of handling any one beverage. Other costs are, in many cases, more important than food costs.

Changing selling prices so that all beverages would have the same markup over total costs would be difficult. Other factors such as competition, needs or desires of customers, and efficient management may be as important or more important in setting selling prices.

Equating selling prices by adjusting quantities served would be impracticable.

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